



PREVENTION OPPORTUNITIES UNDER THE BIG SKY

STROKE: EARLY RECOGNITION AND TIMELY TREATMENT SAVE LIVES

May is National Stroke Month. Stroke is the third leading cause of death and the leading cause of adult disability in the United States.¹ Not only is stroke devastating on a personal level, but the direct and indirect costs associated with stroke in the United States for 2007 are estimated to be \$62.7 billion.² In Montana in 2005, there were nearly 2,000 strokes and over 500 stroke-related deaths.³ It is encouraging to see that the age adjusted stroke mortality rates in the United States and Montana have decreased notably since 1979. (Figure) But there is still considerable work to be done in preventing and treating acute stroke. Early recognition and timely treatment can save lives and prevent disability. This issue of *Montana Public Health* describes stroke control activities in Montana.

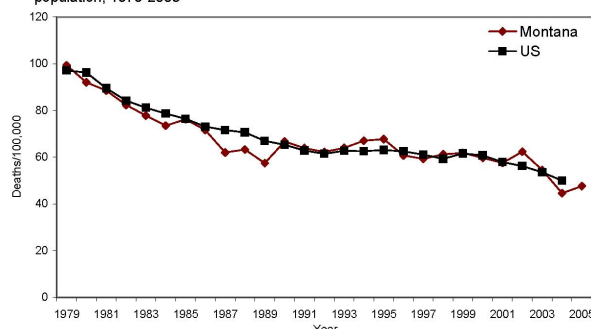
What is a stroke?

There are two basic types of stroke with markedly different causes and treatments. Ischemic strokes, which account for 85% of all strokes, are caused by a blood clot that forms or lodges in an artery within the brain, stopping the flow of blood. Hemorrhagic strokes, which account for 15% of strokes, occur when there is bleeding on or within the brain caused by a blood vessel rupture. Both types of stroke interrupt blood flow to the brain. Interruptions in blood flow, either by a clot or hemorrhage, cause brain cells to die at a very rapid rate – nearly 2 million per minute.⁴

How should stroke be treated?

At this time, the only readily available treatment for ischemic stroke is the clot busting medication, tissue plasminogen activator (t-PA). However, t-PA is vastly underutilized. Only 3 to 8% of potentially eligible ischemic stroke patients receive it, even though the treatment offers great promise in reducing the debilitating effects of stroke.⁵ Why is this treatment so infrequently delivered? First, the drug must be administered within 3 hours of symptom onset. Many stroke victims and their families do not recognize the symptoms of stroke and wait too long before seeking emergency care (Table 1). And second, many hospitals are not equipped to provide acute stroke care. Because stroke has different causes, it is imperative to determine the type of stroke prior to treatment. Treating a hemorrhagic stroke with t-PA would make the bleeding worse and could be fatal.

Figure: Age-adjusted stroke mortality rates for Montana and the general US population, 1979-2005



MT (1979-1989) and US (1979-2003) data source: Compressed Mortality File, CDC Wonder (accessed: 11/27/06)
Stroke mortality rate for US not available for 2005
MT (1990-2005) data source: Montana DPHHS, Vital Statistics

To determine the type of stroke, advanced imaging such as a computed tomography (CT scan) is needed. Many rural facilities do not have a CT scan, or if they do, they may not have the ability to perform the scan and have the scan read in a timely manner.

Table 1: Most common symptoms of stroke

- Sudden numbness or weakness of the face, arm, or leg, especially on one side of the body
- Sudden confusion, trouble speaking or understanding
- Sudden trouble seeing in one or both eyes
- Sudden trouble walking, dizziness or loss of balance or coordination
- Sudden severe headache with no known cause

The Montana Stroke Initiative

To improve stroke recognition and treatment in Montana, the Cardiovascular Health (CVH) Program coordinates the Montana Stroke Initiative. This Initiative includes a group of stroke neurologists, nurses, and emergency medical services (EMS) professionals, as well as representatives from the American Stroke Association, and other organizations whose mission is to improve acute treatment of stroke in Montana. Activities to date have included media campaigns in Missoula, Cascade and Yellowstone counties which focused on stroke symptom recognition, the importance of prompt 911 activation and stroke risk factor education (Table 2).

Table 2: Stroke risk factors

Can be controlled

- High cholesterol
- High blood pressure
- Smoking
- Obesity/Overweight
- Lack of exercise
- Diabetes
- Atrial Fibrillation
- Drug/Alcohol Abuse

Cannot be controlled

- Increasing Age
- Male Sex
- Heredity

Recommendations:

- **Stroke is a medical emergency that has important treatment opportunities.**
- **Patients and their families should be educated about the signs and symptoms of stroke and importance of calling 911 as soon as signs or symptoms appear.**
- **Prevention strategies should be reviewed in high-risk patients at every visit.**
- **Due to the high prevalence of stroke after a transient ischemic attack (TIA), it is extremely important that all TIA patients are thoroughly evaluated to reduce their risk of more serious future events.**

For more information about stroke, visit www.americanstroke.org or call 1-888-4-STROKE. For more information about the Montana Stroke Initiative, contact the Cardiovascular Health Program at (406) 444-9170, email at mmcnamara@mt.gov or visit www.montanastroke.org.

References: available upon request to Mike McNamara (406) 444-9170.

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In addition, the Montana Stroke Initiative developed a web site—www.montanastroke.org—that has clinical stroke protocols and pathways for use in small and large hospitals, educational opportunities for EMS and emergency department personnel, treatment guidelines, and educational presentations. The Montana Stroke Initiative has also developed a prehospital stroke protocol that the Montana Board of Medical Examiners adopted last year providing guidance to Montana's prehospital EMS personnel.

Montana Stroke Initiative: more work coming

In the near future, the CVH Program and the Montana Stroke Initiative will be launching a telestroke project at Central Montana Medical Center (CMMC) in Lewistown. The project will allow a direct link from CMMC to a stroke neurologist. The technology will allow the stroke neurologist to have 2-way audio/video communication with the stroke patient, review labs and CT scan, remotely examine the patient and make treatment recommendations. If this approach proves successful, the CVH Program will seek additional funding to install this technology in more sites in rural areas of Montana.